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"To Mask the Bitter Taste of Rizatriptan Benzoate and Develop Water Dispersible Tablets"

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ABSTRACT

Introduction: Rizatriptan benzoate is anti migraine drug. Report indicates that, it has very bitter taste, which deters its use in geriatrics patient thus not comply with prescription that results in high incidence of non-compliance and ineffective therapy.

Aim: To mask the bitter taste of Rizatriptan benzoate and develop water dispersible tablets.

Methodology: The sweetener like aspartame was use in variable ratio with drug. Physical mixture of Rizatriptan benzoate with Aspartame (1:5 ratio) were rated most effective (0.4) by the panel of tastes. The other used sweeteners did not prove to be very effective for masking of bitter taste as indicated by the high rating of bitterness score 2-3 and 3-4 by panel of human tastes. Water dispersible tablets of Rizatriptan benzoate was formulated by direct compression method using physical mixture of drug: aspartame with superdisintegrants viz. sodium starch glycolate, croscarmilose sodium and crospovidone in variable ratios.

Result: All the formulation batches passed the weight variation test, disintegration test and uniformity of dispersion test and offered good mechanical strength.

Discussion: The combination of sodium starch glycolate with crospovidone in the ratio of 1:2 given best result (disintegration time 19.18 sec), the disintegration time was decreased from 32 to 19 sec.

Conclusion: All formulation batches released more than 98% of drug within 30 min.

Key Words: Water dispersible tablet, Rizatriptan benzoate, Aspartame, Sodium starch glycolate, Cross povidone, Sodium carboxymethyl cellulose, Magnesium stearate, Aerosil

INTRODUCTION

Since the development cost of a new drug molecule is very high, efforts are now being made to focus on the development of new drug dosage forms for existing drugs with improved safety and efficacy, bioavailability together with reduced dosing frequency and the production of more cost effective dosage forms. Drug dissolution and absorption as well as onset of clinical effect and drug bioavailability may be significantly greater than those observed from conventional dosage forms.[2] The tablet is just one of the many forms that an oral drug can take such as syrups, elixirs, suspensions and emulsions. It consists of an active pharmaceutical ingredient (A.P.I.) with biologically inert excipients in a compressed solid form.[3] Dispersible tablets offer advantage for patients who have difficulty in swallowing. Patients for whom chewing is difficult or painful can use these new tablets easily. Dispersible tablets can be used easily for pediatric patients who have lost their primary teeth but do not have full use of their permanent teeth.[4]

Challenges to develop water dispersible tablets

- Avoid increase in tablet size
- Rapid disintegration of tablet
- Have sufficient mechanical strength
- Minimum or no residue in mouth
- Protection from moisture
- Good package design

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- Compatible with taste masking technology
- Not affected by drug properties[5]

There is need for non-invasive delivery systems persists due to patients poor acceptance of and compliance with, existing delivery regimes, limited market size for drug companies and drug uses, coupled with high cost of disease management. [6]

MATERIALS AND METHODS

Rizatriptan benzoate was received as gift sample from Alkem Labs. Ltd. Mumbai. Kyron, Microcrystalline cellulose, Sodium starch glycolate, Cross povidone, Aspartame, Sodium carboxymethyl cellulose, Magnesium stearate, Aerosil were gift samples from Alkem Labs. Ltd. Mumbai.

Characterization of drug and excipients

Characterization of Drug:

a) Appearance : Recorded by physical texture of drug

b) Organoleptic Properties: Taste of sample was tested by panel of tastes following physical properties of drug were studied

c) Determination of melting point: Determined using glass capillary method by using thermometer[10]

d) Solubility analysis:

Excess quantities of drug were added in to the 5 ml of each of distilled water, phosphate buffer (pH 6.8) and 1.0 M HCl contained in 25 ml glass vials and were shaken at constant temperature 37 ±1°C over a period of 24 hr by recording absorbance using respective medium as blank[15]

e) Loss on Drying: Accurately about 1 gm Rizatriptan was weighed and the powder was kept in oven for 6 hr at 105°C. At interval of 2hr the moisture content was calculated[15]

Analytical Method

A validated Double Beam UV Spectrophotometer Model No. UV 1700 , Shimandzu using pH 6.8 phosphate buffer in the range of 400 nm to 200 nm for the estimation of drug

Characterization of Bulk Drug and Effect of Various Formulation Excipients

The infrared (IR) spectrum obtained FTIR Spectrophotometer Model -8300 (Shimadzu, Tokyo, Japan) was compared with that of the standard. To study the compatibility of various formulation excipients with Rizatriptan benzoate , solid admixtures were stored at 40 ± 2°C temperature with relative humidity of RH 75 ± 5 % for 30 days.

Determination of λ_{max} in UV range

Solution of 50 µg/ml concentrations was scanned in the range of 400 nm to 200 nm using distilled water as blank and λ_{max} was noted. Similarly, the λ_{max} values for solutions of drug in 0.1M HCl and phosphate buffer pH 6.8 were determined using corresponding solution as blank.

Thermal behavior by differential scanning calorimetric

Heating at the rate of 100C/min in the range of 30 to 6000C. Air was purged at the rate 50 ml/min.

X-ray diffraction:

X-ray scattering measurements on Rizatriptan benzoate was carried out at a voltage of 40 kV and current of 25 mA using Cr as a tube anode material. The solid were exposed to Cu –K radiation angles from 10°- 70°.63

Evaluation of taste of Rizatriptan benzoate and its taste modified forms by panel method

Healthy human volunteers of either sex in the age group of 20-30 yrs were selected. The procedure was carried out as follows.

- Coding of drug and its taste modified forms was done using non-overlapping abbreviations.
- About 5 ml dispersion of drug powder (equivalent to unit dose) in water was used.
- Dispersion was held in oral cavity for 15 sec by the volunteers.
- Content was split off from oral cavity by the volunteers into wash basin.
- The oral cavity was rinsed with sufficiently large volume of purified water until the after taste of drug is completely ceased.
- Same procedure was followed for all the taste modified form of Rizatriptan benzoate.
- The volunteers were asked to rate both pure drug as well as the individual modified drug samples i.e. resinates in the scale of 0 to 4 as follows,
  0 - No bitter taste
  1 - Slightly bitter taste
  2 - Moderately bitter taste
  3 - Strong bitter taste
  4 - Very strong bitter taste

The scores from each volunteer were compared carefully and the most suitable approach (ratio 0-1) was judged.[12]

Formulation of water dispersible tablets using most suitable approach of taste masking

The ingredients were weighed, mixed in geometrical order and compressed by 8 mm size punch to get a tablet of 200 mg weight using 12 station single rotary Rimak tablet compression machine.

Table 1 : Compression of water dispersible tablets of drug : sweetener with superdisintegrants

Name of the ingredients	Quantity (mg)									
	F	F10	F11	F12	F13	F14	F15	F16	F17	F18
Drug	10	10	10	10	10	10	10	10	10	10
Microcrystalline cellulose (pH 101)	124	116	112	112	116	112	112	116	112	112
Sodium starch glycolate	-	4	4	8				4	4	8
Croscarmellose Sodium	-	4	8	4	4	4	8			
Crospovidone	-				4	8	4	4	8	4
Aspartane	60	60	60	60	60	60	60	60	60	60
Magnesium stearate (0.5%)	1	1	1	1	1	1	1	1	1	1
Aerosil (1%)	2	2	2	2	2	2	2	2	2	2
Orange Flavor	1	1	1	1	1	1	1	1	1	1
Orange Color (1%)	2	2	2	2	2	2	2	2	2	2
Total	200	200	200	200	200	200	200	200	200	200

Equivalent to 10mg of Rizatriptan benzoate, Total weight of tablet 200 mg

Manufacturing procedure: For Trial No. 01 and 18

1) Dispense and weigh accurately all other ingredients as per batch formula and then mix well Rizatriptan Benzoate and Microcrystalline cellulose (PH101) sift through # mesh and other ingredients sift through # 40 mesh.
2) Transfer the step 2 material for blending into the mortar pestle.
3) Sift magnesium stearate through 60#.
4) Compressed the above blend obtained in with their respective punch (punch No.7)

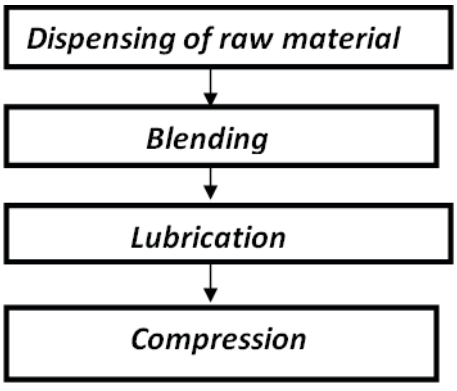

Figure 1: Process flow.

Evaluation of taste masked water dispersible tablets

Appearance: Tablets were examined for texture, any surface flaws like cracks and chips.

Weight variation: The average weight was calculated and individual tablet weight was then compared with average value and the deviation was recorded.

Friability: For this, weight of 10 tablets of each formulation type was recorded and these tablets were then subjected to combined effects of abrasion and shocks in a plastic chamber that revolved at 25 rpm for 4 min (100 revolutions) to make the impact from a height of six inches with each revolution. Test was carried out for 100 revolutions

$$F\% = (W_o - W) / W_o \times 100$$

Where F = friability, W_o = initial weight of the ten tablets = final weight of the ten tablets

Disintegration time (*in vitro*):

For this, 3 tablets of each formulation were used and the disintegration test was conducted at following test conditions,

Apparatus: Disintegration test apparatus

Disintegration medium : Distilled water

Frequency of raising and lowering of basket rack assembly : 28 to 32 cycles.

Temperature of medium : 37±2°C

Wetting Time: A piece of tissue paper folded twice was placed in a small petridish (internal diameter = 6.5cm) containing 10 ml of distilled water. A tablet was placed on the paper and the time for complete wetting of the tablet was measured.

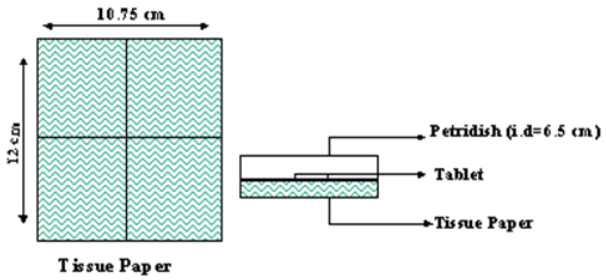

Figure 2: Schematic illustration of the measurement of wetting time of tablets.

Water absorption ratio: A piece of tissue paper folded twice was placed in a small petridish containing 6ml of distilled water. A tablet was put on the paper and time required for complete wetting was measured. The wetted tablet was then weighed. Water absorption ratio, R, was determined using equation:

$$R = 100 \times (Wa-Wb) / Wb$$

Where, Wa = weight of the tablet before water absorption, Wb = weight of the tablet after water absorption

Uniformity of dispersion: For this, two tablets of each formulation were used. The tablets were dropped into100 ml of water contained in a beaker. The dispersion was stirred to allow complete disintegration of tablets and was then passed through a sieve (sieve no. 22, #710µm).

In-Vitro drug release from dispersible tablets

i) *In-Vitro* release of Rizatriptan benzoate in 0.1 M HCl

The dispersible tablets of Rizatriptan benzoate were dropped in dissolution medium. Aliquots of solutions were withdrawn at predetermined intervals and were replaced with same volume of dissolution medium at each withdrawal. The aliquots were filtered through whatman filter paper (No.41) and diluted appropriately before recording the absorbances at previously reported λ_{max} value.

ii) *In-vitro* drug release in distilled water

For this, 2 tablets from each formulation were crushed. A quantity of powder equivalent to 100 mg of Rizatriptan benzoate as well as unmodified Rizatriptan benzoate was accurately weighed and transferred to 10 ml of distilled water in different test tubes. The suspensions were shaken for 60 seconds. Absorbances of filtrates were measured at previously reported λ_{max} value.

Dimensions: Dimensions viz. diameter and thickness of the tablets were measured using digital vernier caliper.

Hardness: Tested using Monsanto hardness tester

Assay: A quantity of powder equivalent to 100 mg of Rizatriptan benzoate was accurately weighed and transferred to 100 ml volumetric flask to which small volume of 0.1 M HCl was added to disperse the contents. Final volume was adjusted to 100 ml using 0.1 M HCl. The dispersion was stirred for 2 hrs using magnetic stirrer and then was allowed to settle. Then the solution was filtered through Whatman filter paper (No.41). Appropriate dilution of filtrate was made using 0.1M HC and the UV absorbance was recorded.

Taste: Evaluation of taste of water dispersible Rizatriptan benzoate tablets by panel of tastes.

Stability testing of water dispersible tablets of taste masked Rizatriptan benzoate

For this, the dispersible tablets of Rizatriptan benzoate prepared using most suitable formulation for masking of bitter taste were selected and stored at the controlled environmental conditions (Temperature 40 ± 2^0 C and RH 75 ± 5 %) for 45 days. The tablets (in triplicate) were tested at the interval of every 15 days

RESULTS

Characterization for probable interaction of drug and excipients

Characterization of Rizatriptan Benzoate

a) Organoleptic Characteristic:

Table 2: Organoleptic Characteristic of Rizatriptan benzoate

Sr No	Organoleptic Test	Reported	Observed
1	Appearance	Amorphous	Amorphous
2	Color	White	White
3	Odor	Odorless	Odorless
4	Taste	Very Bitter	Very Bitter

b) Melting range:

Table 3: Melting range of Rizatriptan benzoate

Sr No	Reported	Observed
1	178-180°C	178-180°C

c) Saturation Solubility:

Table 4: saturation Solubility study of Rizatriptan Benzoate

Sr No	Medium	Solubility
1	Purified water	Soluble
2	0.1M HCl	Slightly soluble
3	0.01M HCl	More Soluble
4	pH 6.8 Phosphate buffer	Soluble
5`	pH 7.4 Phosphate buffer	soluble

d) Loss on Dryng:

Table 5: Loss on Dryng of Rizatriptan Benzoate

Parameter	Reported	Observed
LOD	< 1	0.48

UV spectroscopy

Modified drug powders equivalent to 10 mg of Rizatriptan benzoate were dissolved separately in 0.1 M HCl and the final volume was made up to 100 ml. The solutions were appropriately diluted and were scanned in the UV range of 200-400 nm to note the shift in λ_{max} value. However, in case of modified powders of drug resin complex, dried gels prepared with PEG 6000, the acidic solutions were stirred for about 2 hr and the solutions were filtered and the filtrates were appropriately diluted before scanning in the UV range.

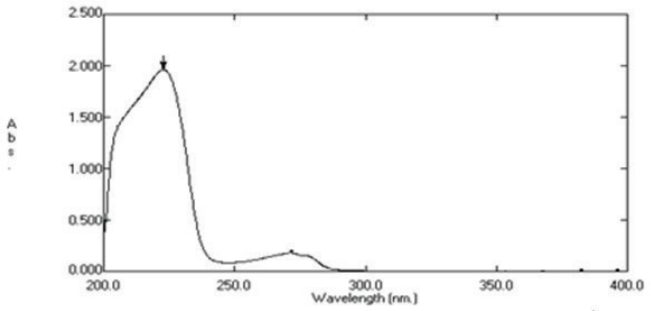

Figure 3: UV scanning of Rizatriptan benzoate in distilled water.

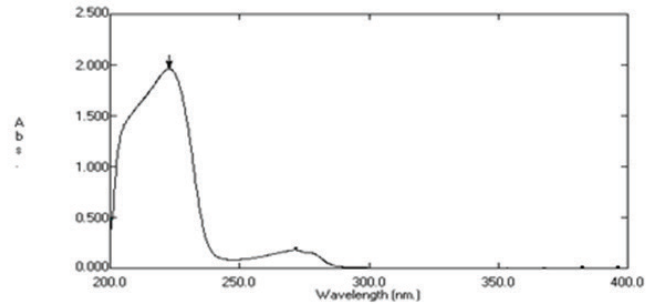

Figure 4: UV scanning of Rizatriptan benzoate in 0.1 M HCl.

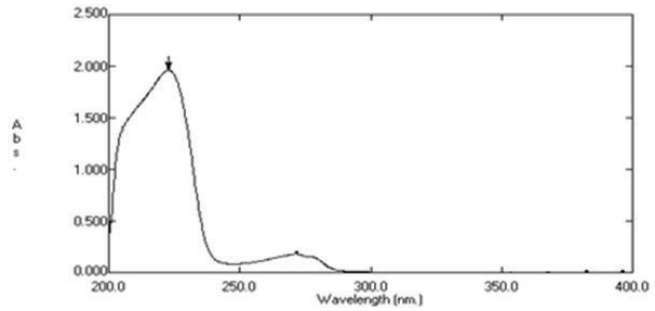

Figure 5: UV Scanning of Rizatriptan benzoate in phosphate buffer pH 6.8.

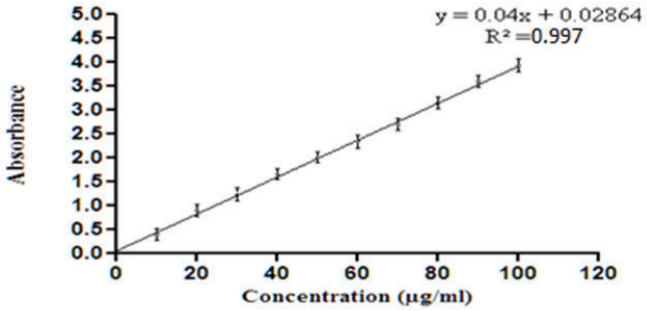

Figure 6: Standard calibration curve of Rizatriptan benzoate in distilled water.

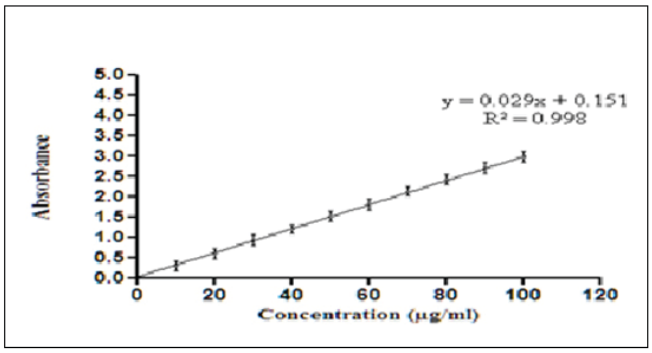

Figure 7: Standard calibration curve of Rizatriptan benzoate in 0.1 M HCl.

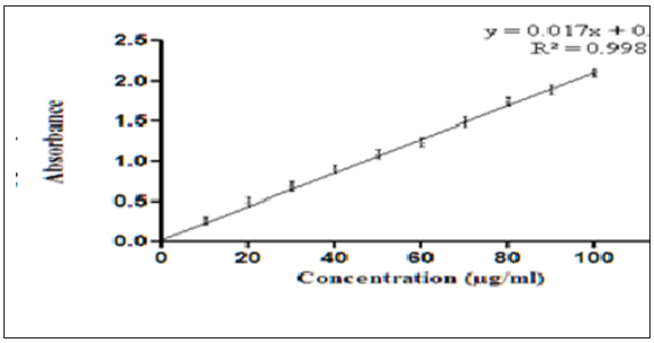

Figure 8: Standard calibration curve of Rizatriptan benzoate in phosphate buffer pH 6.8.

A) Infra red spectroscopy

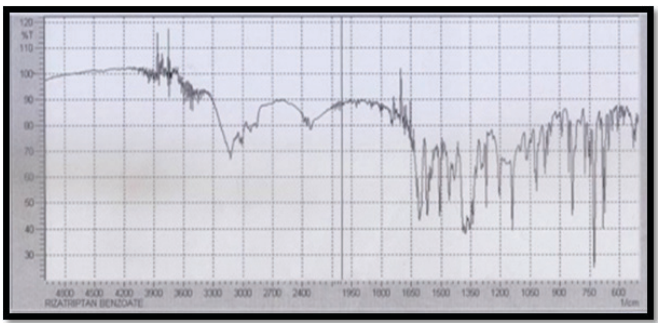

Figure 9: IR spectrum of Rizatriptan benzoate.

Table 6 : Interpretation of IR spectrum of Rizatriptan benzoate

Sr No	Wave number (cm^{-1})	Corresponding functional group with type of molecular vibration
1	3430	N-H stretching of amide
2	2938,2888	CH_3, CH_2stretch
3	1608,1505	C=Cand C=N stretch
4	1569	NH bend
5	1446, 1377	CH_2,CH_3 bend
6	1271,1140,1016	C-N stretch
7	888,853,836,794,772	CH and CN out of plane bend

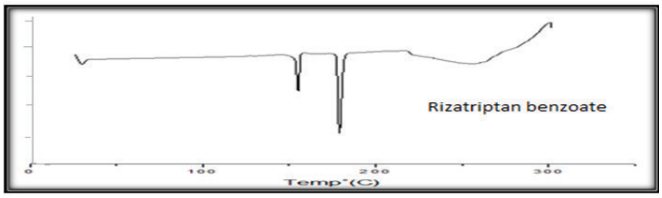

Figure 10: DSC thermogram of Rizatriptan benzoate

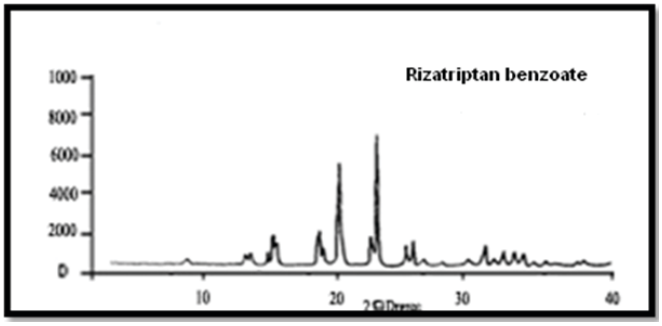

Figure 11: X- ray diffraction spectrum of Rizatriptan benzoate
Evaluation of taste of Rizatriptan benzoate and its taste modified forms by panel method

Table 7: Taste evaluation of Rizatriptan benzoate and physical mixture of Rizatriptan benzoate with sweetener by panel of tastes

Name of sweetener	Taste masked code	Score assigned by the volunteers					Effectiveness Value
		V1	V2	V3	V4	V5	
Rizatriptan benzoate	Pure Drug	4	4	4	4	4	
Sucrose	S1	3	3	2	3	4	3
	S3	3	2	2	1	2	2
	S5	2	2	3	1	1	1.8
	S7	2	2	1	2	1	1.6
Glycine	G1	2	3	2	2	3	2.4
	G3	1	2	2	1	3	1.8
	G5	1	0	1	2	2	1.2
	G7	1	1	1	2	1	1.2
Aspartane	AS1	2	1	1	2	3	1.8
	AS2	2	1	1	2	1	1.4
	AS5	0	1	0	1	0	0.4
	AS7	1	0	0	1	0	0.4

O = No bitter taste, 1= Slightly bitter taste, 2= Moderately bitter taste, 3= Strong bitter taste, 4= Very strong bitter taste
V1,V2,V3,V4, V5 – Volunteers
Content of Rizatriptan benzoate in AS5 was found to be 99.98±0.63%

Table 8: Precompressional parameters of powder blend used for direct compression method

Formulations	Angle of Repose (Θ)	Bulk Density (gm/cm^3)	Tapped Density(gm/cm^3)	Compressibility (%)	Hausner's ratios	Flowability
F	24.38±0.02	0.54±0.04	0.68±0.08	15.21±0.11	1.14±0.04	Excellent
F10	29.16±0.08	0.57±0.02	0.65±0.13	13.38±0.14	1.15±0.08	Excellent
F11	26.01±0.07	0.52±0.01	0.63±0.07	16.60±0.16	1.19±0.06	Excellent
F12	22.08±0.01	0.62±0.04	0.72±0.21	14.42±0.18	1.16±0.09	Excellent
F13	28.24±0.04	0.58±0.03	0.68±0.03	15.21±0.14	1.17±0.10	Excellent
F14	24.35±0.08	0.59±0.04	0.64±0.07	14.61±0.16	1.15±0.11	Excellent
F15	21.23±0.04	0.59±0.06	0.69±0.01	15.69±0.25	1.17±0.06	Excellent
F16	25.01±0.07	0.58±0.01	0.66±0.07	16.60±0.16	1.19±0.06	Excellent
F17	29.08±0.03	0.62±0.04	0.72±0.11	14.52±0.28	1.16±0.09	Excellent
F18	2.24±0.04	0.58±0.06	0.68±0.08	15.41±0.14	1.17±0.11	Excellent

Evaluation of taste masked water dispersible tablets :

Table 9: Evaluation of formulation batch F10-F18 of water dispersible tablets

Formulation Code	Hardness test(Kg/cm²)	Thickness (mm)	Friability (%)	Wetting Time (Sec)	Weight Variation
F	3.6±0.013	4.12±0.02	0.53	74.42±1.3	Passed
F10	3.7±0.011	4.14±0.04	0.52	35.41±1.8	Passed
F11	3.8±0.012	4.14±0.05	0.57	21.03±2.1	Passed
F12	3.8±0.018	4.15±0.017	0.59	28.15±1.3	Passed
F13	3.7±0.020	4.13±0.04	0.66	21.01±1.6	Passed
F14	3.8±0.018	4.15±0.03	0.69	24.15±1.9	Passed
F15	3.8±0.015	4.15±0.14	0.67	27.12±1.2	Passed
F16	3.8±0.013	4.13±0.04	0.70	38.78±0.6	Passed
F17	3.7±0.018	4.15±0.12	0.71	22.44±1.1	Passed
F18	3.8±0.018	4.15±0.17	0.69	28.15±1.3	Passed

(mean ±standard deviation n=3)

Formulation code	Water absorption ratio	In-vitro dispersion time (Sec)	Drug content(%)	In vitro disintegration time (sec)	Uniformity of dispersion
F	79.23±1.4	124.43±0.03	99.60±1.8	272. ±1.4	Passed
F10	94.23±1.8	37.19±0.01	98.72±1.1	29.00±1.8	Passed
F11	96.07±2.1	21.15±0.04	99.60±1.8	18.7±1.4	Passed
F12	97.68±1.3	32.78±0.05	99.28±0.4	21.36±0.8	Passed
F13	97.68±1.6	22.09±0.04	99.44±1.1	30.3±1.3	Passed
F14	99.44±1.9	23.01±0.13	99.91±1.5	21.23±1.4	Passed
F15	86.33±1.2	32.98±0.11	99.05±0.8	28.40±1.1	Passed
F16	98.41±0.6	24.15±0.15	99.28±1.6	27.5±1.5	Passed
F17	97.61±1.1	18.67±0.16	99.49±1.4	19.1±1.4	Passed
F18	97.68±1.3	21.15±0.04	99.18±0.8	21.26±1.4p	Passed

(mean ±standard deviation n=3)

Drug release of formulation batches F10-F18:

Table 10: Drug release profile of batches F10 to F13 in distilled water

Sr. No.	Time (min)	% Cumulative drug release of different batches				
		F	F10	F11	F12	F13
1	0	0	0	0	0	0
2	5	72.1±0.26	82.93±0.28	84.27±0.15	79.1±0.24	82.48±0.14
3	10	84.51±0.27	84.57±0.25	89.47±0.21	85.51±0.25	86.77±0.29
4	15	86.65±0.28	89.85±0.21	91.39±0.14	89.65±0.26	91.07±0.26
5	20	93.11±0.14	91.58±0.22	94.63±0.16	93.11±0.11	94.93±0.27
6	25	94.25±0.18	96.31±0.18	98.48±0.15	96.25±0.19	97.18±0.32
7	30	99.72±0.19	98.85±0.19	99.33±0.16	98.72±0.16	99.44±0.33

(mean ±standard deviation n=3)

Table 11: Drug release profile of batches F14 to F18 in distilled water

Sr. No.	Time (min)	% Cumulative drug release of different batches				
		F14	F15	F16	F17	F18
1	0	0	0	0	0	0
2	5	81.62±0.26	82.86±0.13	79.27±0.16	80.27±0.16	81.86±0.02
3	10	83.98±0.22	85.25±0.15	81.42±0.15	8.42±0.15	89.58±0.20
4	15	85.98±0.17	87.33±0.16	87.74±0.11	91.74±0.11	83.3±0.13
5	20	91.75±0.16	89.42±0.19	87.3±0.24	95.3±0.24	88.33±0.14
6	25	95.21±0.15	94.14±0.15	91.19±0.13	98.89±0.13	92.06±0.16
7	30	99.06±0.11	99.93±0.13	98.45±0.22	99.97±0.14	99.79±0.14

(mean ±standard deviation n=3

Dissolution release profile of formulation batches F10 to F18 in 0.1MHCl

Table 12: Drug release profile of batches F10 to F13 in 0.1M HCl

Sr. No.	Time (min)	% Cumulative drug release of different batches				
		F	F10	F11	F12	F13
1	0	0	0	0	0	0
2	5	78.4±0.1	83.86±0.11	86.65±0.01	83.93±0.02	85.48±0.11
3	10	82.7±0.14	89.58±0.16	91.80±0.09	86.57±0.04	90.77±0.13
4	15	89.2±0.19	90.30±0.13	93.34±0.13	89.85±0.01	93.07±0.15
5	20	92.8±0.14	92.33±0.15	95.11±0.10	90.58±0.03	95.93±0.12
6	25	98.9±0.12	94.06±0.17	98.91±0.12	94.31±0.05	98..18±0.16
7	30	99.67	98.79±0.18	99.94±0.11	98.05±0.07	99.44±0.19

(mean ±standard deviation n=3)

Table 13 : Drug release profile of batches F14 to F18 in 0.1MHCl

Sr. No.	Time (min)	% Cumulative drug release of different batches				
		F14	F15	F16	F17	F18
1	0	0	0	0	0	0
2	5	81.61±0.11	85.11±0.15	82.71±0.18	88.42±0.14	87.52±0.12
3	10	86.26±0.11	88.9±0.04	89.62±0.12	9.77±0.13	90.54±0.02
4	15	94.21±0.17	91.6±0.03	91.51±0.11	93.23±0.19	92.61±0.10
5	20	95.45±0.02	95.12±0.17	92.32±0.1	97.81±0.1	94.36±0.13
6	25	96.32±0.15	98.79±0.18	95.94±0.11	99.05±0.07	97.84±0.19
7	30	99.17±0.05	99.07±0.20	99.27±0.15	99.87±0.35	99.37±0.25

(mean ±standard deviation n=3

Evaluation of taste water dispersible Rizatriptan benzoate tablets:

Taste evaluation of formulation batches F17 and marketed tablets of water dispersible Rizatriptan benzoate tablets by panel of tastes were carried out as per procedure

Table 14: Taste evaluation of Marketed tablets with batch F17 by panel of tastes

Formulation Batch	1	2	3	4	5	Average effectiveness
Marketed preparation	3	4	4	3	3	3.6
Batch F17	1	0	1	0	0	0.4

0=No bitter taste,1=n Slightly bitter taste, 2= Moderately bitter taste, 3= Strong bitter taste, 4= Very strong bitter taste

DISCUSSION

Organoleptic Characteristic:

The Organoleptic characteristic of drug were matching with those reported in the USP

Melting range: From the result it was observed that the melting range of Rizatriptan benzoate has good agreement with those reported in the USP

Saturation Solubility: From the result of saturation solubility it was observed that Rizatriptan benzoate was more soluble in 0.1M HCl in water.

Loss on drying: From the result it was observed that LOD was within specified limit

Spectrum analysis of Rizatriptan benzoate:

λ_{max} of Rizatriptan benzoate in distilled water 0.1M HCl and phosphate buffer pH 6.8 was found to be 225.2nm, 225.4nm and 225.1nm respectively. The observed values are in good agreement with the reported value in USP (225nm)

Standard calibration curve of Rizatriptan benzoate in phosphate buffer:

Standard calibration curves of Rizatriptan benzoate in distilled water 0.1M HCl and phosphate buffer pH 6.8 were found to be linear.

Evaluation of taste of Rizatriptan benzoate and its taste modified forms by panel method

It was observed that batch AS5 and AS7 has least score i.e 0.4. But sweetener used in AS7 to mask the taste. To reduce the bulk of tablet, AS5 was selected for further study

Content of Rizatriptan benzoate in AS5 was in the range (90-110%) complies with the USP range

The mixture blends of all the formulation batches had bulk density in the range of 0.55-0.62 gm/cm^3 and tapped density in the range of 0.68-0.72 gm/cm^3.All formulations had compressibility index 13.38-6.68 and Hausner's ratio less than 1.26, indicating excellent flowability

CONCLUSION

The combination of sodium starch glycolate with crospovidone in the ratio of 1:2 given best result (disintegration time 19.18 sec), the disintegration time was decreased from 32 to 19 sec. The prepared optimized tablet showed rapid disintegration as well as rapid dissolution. Thus the rapid disintegrating tablet of bitter drug having better taste and pleasant mouth feel can be successfully formulated.

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